

Montana Department of Natural Resources and Conservation
Water Resources Division
Water Rights Bureau

ENVIRONMENTAL ASSESSMENT
For Routine Actions with Limited Environmental Impact

Part I. Proposed Action Description

1. *Applicant/Contact name and address:* Gordon L. and Margaret G. Bradley
12791 CR 352
Sidney, MT 59270
2. *Type of action:* Application for Beneficial Water Use Permit No. 42M 30066962
3. *Water source name:* Groundwater
4. *Location affected by project:* SENW Sec 09, Township 21 North, Range 58 East, Richland County
5. *Narrative summary of the proposed project, purpose, action to be taken, and benefits:*
The application is for 800 GPM up to 272 Acre-Feet (AF) of water for irrigation use annually from April 1st to October 31st. The point of diversion is located in the NESENW Section 9, T21N, R58E, Richland County, and the place of use is located in the N2N2SW, W2W2NE, and NW Section 9, T21N, R58E, Richland County.
6. The DNRC shall issue a water use permit if the applicant proves the criteria in 85-2-311, MCA are met.
7. *Agencies consulted during preparation of the Environmental Assessment:*
(include agencies with overlapping jurisdiction)

Montana Department of Environmental Quality – Web site
Montana Department of Fish, Wildlife & Parks
National Wetlands Inventory
Montana Natural Heritage Program

Part II. Environmental Review

1. Environmental Impact Checklist:

PHYSICAL ENVIRONMENT

WATER QUANTITY, QUALITY AND DISTRIBUTION

Water quantity - *Assess whether the source of supply is identified as a chronically or periodically dewatered stream by DFWP. Assess whether the proposed use will worsen the already dewatered condition.*

Determination: The Department showed that the zone of influence for this well intersects the Yellowstone River. The reach of the Yellowstone River that is included in the zone of influence is not identified as a chronically or periodically dewatered stream by the Montana Department of Fish, Wildlife & Parks. The DFWP has a water reservation on this portion of the Yellowstone River that ranges from 2,670 CFS in August to 25,140 CFS in June to maintain instream flows.

The rate of diversion will not have a significant impact on groundwater or the Yellowstone River quality. The Department finds that existing water users with diversions on the Yellowstone River may reasonably exercise their water rights should the potential maximum depletion result from the proposed appropriation.

This reach of the stream is not identified as being dewatered and a diversion rate of 800 GPM up to 272 AF will likely not have a significant effect on the Yellowstone River.

Water quality - *Assess whether the stream is listed as water quality impaired or threatened by DEQ, and whether the proposed project will affect water quality.*

Determination: The lower Yellowstone River is listed on the 2010 Montana 303(d) list as fully supporting agriculture, drinking water, industrial uses, and primary contact recreation, and partially supporting aquatic life and a warm water fishery. Probable causes of impairment are alterations in stream-side or littoral vegetative covers, fish passage barriers, and chemical and mineral levels. Probable sources of the impairment are the impacts from irrigation crop productions, rangeland grazing, streambank modification/destabilization, hydro-structure flow regulation/modification, and natural or unknown sources of chemical or mineral properties.

This project will not have a significant or long term impact on water quality.

Groundwater - *Assess if the proposed project impacts ground water quality or supply. If this is a groundwater appropriation, assess if it could impact adjacent surface water flows.*

Determination: The well was drilled in March of 2009. The Applicant conducted a 72-hour aquifer test at the proposed pumping rate of 800 GPM from November 13 through November 16, 2009. Modeling analysis by the Department shows that there is groundwater physically and legally available for appropriation in the amount requested during the period of diversion requested. Modeling also predicts that drawdown in excess of 1 foot would occur in zero wells that are within 2,100 feet of the proposed well. The Department has also determined that hydraulically connected surface water of the Yellowstone River is physically and legally available in the amount in which depletions will occur. Based on these findings, there will be no significant impact to the groundwater aquifer or hydraulically connected surface waters.

DIVERSION WORKS - *Assess whether the means of diversion, construction and operation of the appropriation works of the proposed project will impact any of the following: channel impacts, flow modifications, barriers, riparian areas, dams, well construction.*

Determination: Water will be diverted from the ground via a 12 inch well. The well was completed to a depth of 180 feet, screened from 153 to 173 feet, with a static water level (SWL) of 101.2 feet. The well is located at the pivot point so there will be no pipeline. The well will use a Goulds 11 CMC 4 stage turbine pump set at a depth of 140 feet and a 75hp electric motor. REA electric will be required at the pivot point to run the pump and the pivot. The pivot will cover 136 acres, with no end gun and will use Nelson R3000 Rotators for a sprinkler package. The sprinklers will be 5ft above the ground and use pressure regulators to maximize efficiency. The system will have a chemigation check valve and flow meter located at the well.

The well was drilled and pump tested at a rate of 800 gpm. The diversion structure has been designed and will be constructed by Agri-Industries of Williston, North Dakota. Agri-Industries is a Montana licensed water well driller. This well will have no channel impacts, will not create any significant flow modifications or barriers, or have any impact to riparian areas.

UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES

Endangered and threatened species - *Assess whether the proposed project will impact any threatened or endangered fish, wildlife, plants or aquatic species or any “species of special concern,” or create a barrier to the migration or movement of fish or wildlife. For groundwater, assess whether the proposed project, including impacts on adjacent surface flows, would impact any threatened or endangered species or “species of special concern.”*

Determination: According to the Montana Natural Heritage Program website, The Bureau of Land Management, (BLM), lists the Meadow jumping mouse, Dickcissel, Loggerhead Shrike, Spiny Softshell, Blue Sucker, Sturgeon Chub, Paddlefish, and Sauger as Sensitive. The Whooping Crane and the Pallid Sturgeon are listed by BLM as Special Status. Both the US Forest Service and the US Fish & Wildlife Service list the Whooping Crane and the Pallid Sturgeon as Endangered and BLM lists them as Special Status. There are no federally-listed plant species within the Project area.

Meadow jumping mouse

Meadow Jumping Mice generally occupies moist lowland habitats rather, preferring relatively dense vegetation in open grassy and brushy areas of marshes, meadows, swamps, open conifer forest, and often favor sites bordered by small streams. On the Northern Great Plains this usually results in its restriction primarily to riparian habitats. When inactive, they occupy underground burrows, usually in banks or hills (winter), or under logs or grass clumps. Young are born in an underground nest or under other cover (Krutzsch 1954, Whitaker 1972, Jones et al. 1983).

Dickcissel

Breeding habitat is grasslands, meadows, savanna, cultivated lands, and brushy fields (American Ornithologists Union 1998). They nest on the ground in grass or rank herbage, or slightly raised above ground, in grass tufts or tall weeds, or in low shrubs or trees. They prefer habitat with dense, moderate to tall vegetation (particularly with some forbs) and moderately deep litter. Suitable habitats are found in old fields, hayfields, fencerows, hedgerows, road rights-of-way,

planted cover (e.g., Conservation Reserve Program [CRP] fields and dense nesting cover), and moderately grazed and idle prairie.

The non-breeding habitat of Dickcissels consists mainly of a variety of open habitats, second growth, and scrub (American Ornithologists Union 1998). They prefer to roost in sugarcane (*Saccharum spp.*) fields, but if not available, they will utilize bamboo, cattail marshes, grasses, and shrubs (Basili and Temple 1999).

Loggerhead Shrike

In Idaho, nests are found in sagebrush (65%), bitterbush, and greasewood, and are equally successful in all three (Woods and Cade 1996).

Spiny Softshell Turtle

They occupy larger rivers and tributaries. Both sexes have been observed basking together on partially submerged logs in backwater sites of slow-moving water, and on sandy or muddy riverbanks (Hendricks and Reichel 1996).

Generally, the Spiny Softshell is primarily a riverine species, occupying large rivers and river impoundments, but also occurs in lakes, ponds along rivers, pools along intermittent streams, bayous, irrigation canals, and oxbows. It usually is found in areas with open sandy or mud banks, a soft bottom, and submerged brush and other debris. Spiny Softshells bask on shores or on partially submerged logs. They burrow into the bottoms of permanent water bodies, either shallow or relatively deep (0.5 to 7.0 meters), where they spend winter. Eggs are laid in nests dug in open areas in sand, gravel, or soft soil near water. No specific information is available for Montana, but data from other locations indicate that eggs are laid mostly in the second half of May and in June (most areas). Hatchlings emerge in 55 to 125 days in late August to early October (mainly September). Nesting sites need to be identified and protected from disturbance by human activities.

Blue Sucker

The blue sucker is a species of concern in Montana. It inhabits larger rivers and the lower reaches of major tributaries, and is usually found in channels and flowing pools with moderate current, and in some impoundments. Adults probably winter in deep pools. Young are present in shallower and less swift water than adults. The blue sucker spawn in deep riffles (1-2 meters) with cobble and bedrock substrate (NatureServe 2009). They potentially occur within suitable habitat in rivers crossed by or downstream of proposed Project river crossing including the Yellowstone River in Montana.

Sturgeon Chub

The sturgeon chub prefers large turbid sandy rivers over substrate of small gravel and coarse sand. It is often found in areas swept by currents especially at the head of islands or exposed sandbars. Sturgeon chubs occur in the Yellowstone River.

Paddlefish

Paddlefish occur in Yellowstone River in Montana. This fish inhabits slow moving water of large rivers or reservoirs, usually in water deeper than four feet (130 cm). Paddlefish require large volumes of slow flowing water in order to reproduce. considerations and BMPs for maintaining water quality and flow would minimize potential impacts.

Sauger

Sauger inhabits the larger turbid rivers and the muddy shallows of lakes and reservoirs. They spawn in gravelly or rocky areas in shallow water and seem to prefer turbid water.

Whooping Crane

The Whooping Crane has been observed in the marsh habitat present at Medicine Lake National Wildlife Refuge and Red Rock Lakes National Wildlife Refuge. Observations of individual birds in other areas of the state include grain and stubble fields as well as wet meadows, wet prairie habitat, and freshwater marshes that are usually shallow and broad with safe roosting sites and nearby foraging opportunities (Lenard et al. 2003).

Pallid Sturgeon

Pallid sturgeon use large, turbid rivers over sand and gravel bottoms, usually in strong current; also impoundments of these rivers (FWP). In Montana, pallid sturgeon use large turbid streams including the Missouri and Yellowstone rivers (Brown 1971). They use all channel types, primarily straight reaches with islands (Bramblett 1996). They primarily use areas with substrates containing sand (especially bottom sand dune formations) and fines (93% of observations) (Bramblett 1996).

This is a groundwater development on an area that has been historically used for agricultural purposes. The irrigation well will not create a barrier to the migration or movement of fish or wildlife. The Depletion Report did identify a potential maximum depletion of 306 gpm in September to the Yellowstone River. This will not have a significant impact on the flows of the river or the species dependent on it. Therefore, the Project will likely have no effect on endangered and threatened species.

Wetlands - *Consult and assess whether the apparent wetland is a functional wetland (according to COE definitions), and whether the wetland resource would be impacted.*

Determination: According to the national Wetlands Inventory (website) there is one small, 0.5 acre, section of Freshwater Emergent Wetland located within the potential pivot area. However, it can be seen in 1979 aerial photograph that this area has been irrigated for agricultural purposes for over 30 years, and the addition of a groundwater well and a central pivot will not have a significant impact.

Ponds - *For ponds, consult and assess whether existing wildlife, waterfowl, or fisheries resources would be impacted.*

Determination: Not applicable.

GEOLOGY/SOIL QUALITY, STABILITY AND MOISTURE - *Assess whether there will be degradation of soil quality, alteration of soil stability, or moisture content. Assess whether the soils are heavy in salts that could cause saline seep.*

Determination: According to the Richland County Soil Survey, the soils within the 136 acres to be irrigated are predominately Vida clay loam. The Vida series consists of deep, well drained soils on glaciated uplands. Permeability is moderately slow and available water capacity is high.

Surface runoff is slow to medium, depending on the slope. The hazard erosion is slight to moderate.

With sprinkler irrigation, the soil can be irrigated at very slow rates to allow for complete water intake with minimal runoff and ponding. Irrigation enhances crop cover during the growing season and provides more protection from wind and water erosion. Irrigation also increases plant residues returned to the soil. Soil structure is improved, microbe populations benefit from the added food source, and nitrogen fertility is enhanced. In general irrigation can be good for the soil if it is managed to minimize the hazards of wind and water erosion.

The Project will have no significant impacts on soils in the project area.

VEGETATION COVER, QUANTITY AND QUALITY/NOXIOUS WEEDS - *Assess impacts to existing vegetative cover. Assess whether the proposed project would result in the establishment or spread of noxious weeds.*

Determination: The 136 acres will be cropped with wheat, barley, alfalfa, corn and sugar beets. There will be no pipeline, since the well is located at the pivot point therefore there will be no ground disturbance. It is the responsibility of the property owner to control noxious weeds on their property.

The Applicant will be responsible for monitoring and controlling the establishment or spread of noxious weeds.

AIR QUALITY - *Assess whether there will be a deterioration of air quality or adverse effects on vegetation due to increased air pollutants.*

Determination: There will be no deterioration of air quality as a result of this appropriation.

HISTORICAL AND ARCHEOLOGICAL SITES - *Assess whether there will be degradation of unique archeological or historical sites in the vicinity of the proposed project.*

Determination: NA- Project not located on State or Federal Lands.

DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AND ENERGY - *Assess any other impacts on environmental resources of land, water and energy not already addressed.*

Determination: No additional impacts on other environmental resources were identified.

HUMAN ENVIRONMENT

LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS - *Assess whether the proposed project is inconsistent with any locally adopted environmental plans and goals.*

Determination: There are no known local environmental plans or goals in this area.

ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES - *Assess whether the proposed project will impact access to or the quality of recreational and wilderness activities.*

Determination: The project is located in a rural area that has historically been used for agricultural purposes and will not have an impact on recreation or wilderness activities.

HUMAN HEALTH - *Assess whether the proposed project impacts on human health.*

Determination: This project will have no impact on human health.

PRIVATE PROPERTY - *Assess whether there is any government regulatory impacts on private property rights.*

Yes___ No_X_ If yes, analyze any alternatives considered that could reduce, minimize, or eliminate the regulation of private property rights.

Determination: There are no additional government regulatory impacts on private property rights associated with this application.

OTHER HUMAN ENVIRONMENTAL ISSUES - *For routine actions of limited environmental impact, the following may be addressed in a checklist fashion.*

Impacts on:

- (a) Cultural uniqueness and diversity? No Significant Impact
- (b) Local and state tax base and tax revenues? No Significant Impact
- (c) Existing land uses? No Significant Impact
- (d) Quantity and distribution of employment? No Significant Impact
- (e) Distribution and density of population and housing? No Significant Impact
- (f) Demands for government services? No Significant Impact
- (g) Industrial and commercial activity? No Significant Impact
- (h) Utilities? No Significant Impact
- (i) Transportation? No Significant Impact
- (j) Safety? No Significant Impact
- (k) Other appropriate social and economic circumstances? No Significant Impact

2. *Secondary and cumulative impacts on the physical environment and human population:*

Secondary Impacts: This assessment does not indicate possible secondary impacts on the physical environment and/or the local human population.

Cumulative Impacts: This assessment does not indicate possible cumulative impacts on the physical environment and/or the local human population.

3. ***Describe any mitigation/stipulation measures:*** N/A
4. ***Description and analysis of reasonable alternatives to the proposed action, including the no action alternative, if an alternative is reasonably available and prudent to consider:*** An alternative analysis of the project identified a no action alternative to the construction of a well for irrigation. This alternative would not have any direct impacts that are typically associated with irrigation. The no-action alternative would not allow the Applicant to meet the purpose of and need for the project.

PART III. Conclusion

1. ***Preferred Alternative:*** Issue a water use permit if the applicant proves the criteria in 85-2-311, MCA are met.

2 Comments and Responses

3. ***Finding:***
Based on the significance criteria evaluated in this EA, is an EIS required? NO

If an EIS is not required, explain why the EA is the appropriate level of analysis for this proposed action:

No significant impacts have been identified; therefore an EIS is not necessary.

Name of person(s) responsible for preparation of EA:

Name: Heather Harris
Title: Water Resource Specialist
Date: October 31, 2013

American Ornithologists' Union. 1998. Check-list of North American birds. 7th edition. American Ornithologists' Union, Washington, D.C. 829 pp.

Basili, G. and S. A. Temple. 1995. A perilous migration. Natural History 104(9): 40-47.

Bramblett, R.G. 1996. Habitats and Movements of Pallid and Shovelnose Sturgeon in the Yellowstone and Missouri Rivers, Montana and North Dakota. Ph. D. Dissertation, Montana State University, Bozeman, MT.

Brown, C.J.D. 1971. Fishes of Montana. Montana State University, Bozeman, MT.

- Hendricks, P., and J. D. Reichel. 1996. Preliminary amphibian and reptile survey of the Ashland District, Custer National Forest: 1995. Montana Natural Heritage Program. Helena, MT. 79 pp.
- Jones, J. K. Jr., D. M. Armstrong, R. S. Hoffmann and C. Jones. 1983. Mammals of the northern Great Plains. Univ. Neb. Press, Lincoln. 379 pp.
- Krutzsch, P. H. 1954. North American jumping mice (genus *Zapus*). University of Kansas Publications, Museum of Natural History 7:349-472.
- Lenard, S., J. Carlson, J. Ellis, C. Jones, and C. Tilly. 2003. P. D. Skaar's Montana Bird Distribution, 6th Edition. Montana Audubon: Helena, MT, 144 pp.
- Whitaker, J.O., and R. E. Wrigley. 1972. *ZAPUS HUDSONIUS*. Mamm. Species No. 11. 7 pp.
- Woods, C.P. and T.J. Cade. 1996. Nesting habits of the loggerhead shrike in sagebrush. Condor 98: 75-81.